

IN THE CLAIMS:

Please write the claims to read as follows:

- 1 1. (Currently Amended) A method for initiating a peer-to-peer communication session,
2 the method comprising:
3 ~~Initiating~~initiating a boot process;
4 ~~Initializing~~initializing a cluster connection manager in the booting process before
5 a storage operating system executing on ~~the~~a cluster partner is fully active;
6 ~~Initiating~~initiating, by the cluster connection manager, a first remote direct
7 memory access (RDMA) read operation directed to a cluster partner before a storage
8 operating system executing on the cluster partner is fully active, the RDMA read
9 operation bypassing the operating system;
10 ~~Performing~~performing, in response to a successful first RDMA read operation, a
11 first RDMA write operation to the cluster partner;
12 ~~Performing~~performing, in response to a successful RDMA write operation, a
13 second RDMA read operation directed to the cluster partner; and
14 ~~Performing~~performing, in response to a successful second RDMA read operation,
15 a second RDMA write operation to the cluster partner before a storage operating system
16 executing on the cluster partner is fully active, in the booting process.
- 1 2. (Original) The method of claim 1 wherein the step of attempting a first RDMA read
2 operation further comprises the step of issuing a RDMA read operation to the cluster
3 partner requesting a pre-set memory address location that is associated with a status
4 variable on the cluster partner.
- 1 3. (Previously Presented) The method of claim 1 further comprising :
2 exchanging a set of peer connection information;
3 passing a set of client information to the cluster partner;
4 creating a set of appropriate communication ports;
5 alerting the cluster partner of a ready status; and

6 alerting a set of clients that the cluster partner is in a ready state.

1 4. (Original) The method of claim 3 wherein the set of peer connection information
2 comprises a version number.

1 5. (Currently Amended) The method of claim ~~4~~3 wherein passing a set of client
2 information to the cluster partner further comprises :
3 collecting, from a set of clients, the set of client information; and
4 transferring the collected set of client information to the cluster partner.

1 6. (Original) The method of claim 5 wherein the client information comprises a number
2 of communication ports required.

1 7. (Original) The method of claim 5 wherein the set of client information further
2 comprises an amount of memory requested by a particular client.

1 8. (Original) The method of claim 1 wherein the cluster partner is a storage system.

1 9. (Original) The method of claim 1 wherein the cluster partner is an application server.

1 10-14 (Cancelled)

1 15. (Currently Amended) A method comprising :

2 ~~Initiating~~initializing a boot process;

3 ~~Initializing~~initializing a cluster connection manager in the boot process before a
4 storage operating system executing on ~~the~~a cluster partner is fully active;

5 ~~Initiating~~initializing, a peer-to-peer communication session, by a cluster connection
6 manager, before a storage operating system executing on the cluster partner is fully active
7 which bypasses an operating system on a storage system by attempting a first remote
8 direct memory access read operation directed to a predefined hardware address and a

9 predefined port number, the predefined hardware address and the predefined port number
10 previously known to support a RDMA operation; and

11 ~~Performing~~performing, in the booting process, before a storage operating system
12 executing on the cluster partner is fully active, in response to a successful initiating, a
13 first remote direct memory access write operation directed to the predefined hardware
14 address and the predefined port number.

1 16. (Currently Amended) The method of claim 15 further comprising:

2 ~~Performing~~performing, in response to a successful first remote direct memory
3 access write, a second remote direct memory access read operation directed to the
4 predefined hardware address and the predefined port number.

1 17. (Original) The method of claim 15 wherein the predefined hardware address
2 comprises a fibre channel identifier.

1 18. (Original) The method of claim 15 wherein the predefined port number comprises a
2 virtual interface.

1 19. (Original) The method of claim 15 wherein the first remote direct memory access is
2 delivered to a predefined memory address storing booting status information.

1 20. (Previously Presented) A system configured to establish reliable peer-to-peer
2 communication among storage systems of a clustered environment, the system
3 comprising:

4 a booting process executed by a processor;

5 a peer process executing on each storage system partner having an operating
6 system; and

7 a cluster connection manager executing on each storage system partner, the
8 cluster connection manager establishing a reliable peer-to-peer connection between each
9 peer process in the booting process before a storage operating system executing on a

10 cluster partner is fully active by connecting to a predetermined port number using a
11 predetermined network address, the reliable peer-to-peer connection bypassing the
12 operating system and initiate a remote direct memory access (RDMA) read operation
13 directed to a cluster partner.

1 21. (Original) The system of claim 20 wherein the reliable peer-to-peer connection is
2 established without requiring a storage operating system executing on each storage
3 system partner to be fully functioning.

1 22. (Original) The system of claim 20 wherein the peer-to-peer connection is a virtual
2 interface connection.

1 23. (Original) The system of claim 20 wherein the peer process is a cluster connection
2 client that requests services from the cluster connection manager.

1 24. (Previously Presented) A system configured to open an initial peer-to-peer connection
2 over a cluster interconnect, the system comprising:
3 a storage system having an operating system;
4 a booting process executed by a processor;
5 a cluster connection manager executing on the storage system, the cluster
6 connection manager configured to establish a peer connection in the booting process
7 before a storage operating system executing on a cluster partner is fully active on a
8 predetermined port number and using a predetermined network address within the storage
9 system the peer-to-peer connection bypassing the operating system and initiate a remote
10 direct memory access (RDMA) read operation directed to a cluster partner ; and
11 a process executing on the storage system, the process configured to use the
12 established peer connection for communication.

1 25. (Previously Presented) The system of claim 24 wherein the peer-to-peer connection is
2 a virtual interface connection.

1 26. (Previously Presented) The system of claim 24 wherein the process executing on the
2 storage system is a cluster connection client that requests services from the cluster
3 connection manager.

1 27. (Previously Presented) The system of claim 24 wherein the process executing on the
2 storage system communicates with a cluster partner using the established peer
3 connection.

1 28. (Previously Presented) A system configured to accept the initiation of a peer-to-peer
2 connection over a cluster interconnect, the system comprising:
3 a storage system having an operating system;
4 a booting process executed by a processor;
5 a cluster connection manager executing on the storage system, the cluster
6 connection manager configured to accept a peer connection on a predetermined port
7 number and using a predetermined network address within the storage system in the
8 booting process before a storage operating system executing is fully active; and
9 a process executing on the storage system, the process configured to read
10 information from the established peer connection.

1 29. (Previously Presented) The system of claim 28 wherein the peer-to-peer connection is
2 a virtual interface connection.

1 30. (Previously Presented) The system of claim 28 wherein the process executing on the
2 storage system is a cluster connection client that requests services from the cluster
3 connection manager.

1 31. (Previously Presented) The system of claim 28 wherein the process executing on the
2 storage system reads information from a cluster partner.

1 32. (Previously Presented)The system of claim 28 wherein the information comprises
2 heartbeat signals.

1 33-34. (Cancelled)

1 35. (Currently Amended) computer readable medium containing executable program
2 instructions executed by a processor, comprising:

3 program instructions that initiate a booting process;

4 program instructions that initialize a cluster connection manager in the booting
5 process before a storage operating system executing on ~~the~~a cluster partner is fully
6 active;

7 ~~Program-program~~ instructions that initiate, in the booting process, a first remote
8 direct memory access (RDMA) read operation before a storage operating system
9 executing on a cluster partner is fully active;

10 ~~program Program~~ instructions that perform, in response to a successful first
11 RDMA read operation, a first RDMA write operation to the cluster partner;

12 ~~program Program~~ instructions that perform, in response to a successful RDMA
13 write operation, a second RDMA read operation directed to the cluster partner; and

14 ~~program Program~~ instructions that perform in the booting process before a storage
15 operating system executing on the cluster partner is fully active, in response to a
16 successful second RDMA read operation, a second RDMA write operation to the cluster
17 partner.